

COMPACT FRONT FACET TAP FOR LASER DEVICE

ABSTRACT

A laser device that includes structure to tap laser output energy, e.g., to measure output power levels, is provided. The laser device includes a laser source and an optical objective that is able to couple laser energy from the laser device to an output device, such as a fiber. The laser device also includes an optical isolator to prevent back reflections and back scattered light from impinging on the laser device. Normally, the only function of the optical isolator is to ensure that no light reflects back toward the laser source. In an example, the isolator provides a reflection of the laser beam to a monitor photodiode. A front face of the optical isolator is tilted relative to the laser source and the lens to reflect a portion of the laser output energy back into the lens, which may focus the reflected portion onto a photodiode. The photodiode may be used to measure the intensity of the laser output energy. In some embodiments, the objective is a single lens; in others, multiple lenses may be used. The objective and optical isolator may be positioned to couple the reflected portion to a spot laterally displaced from the laser source. Such lateral displacement allows the laser source and a photodiode to be fabricated together and/or mounted to the same submount, thereby reducing the overall size of the laser device in comparison to known devices.